Block Trace
(Project Proposal)

Project Code

<Project code assigned by the Project Office>

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Submission Date

11 Oct, 2023

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1. Abstract

The complex network of global supply chain and its efficient management is important for businesses in order to keep it competitive and so that, the users can get quality products. But the traditional supply chain system usually go through ineffectiveness, reduced clarity or transparency and security concerns.The blockchain technology adoption offers opportunities for the supply chain management revolunization.

The objective is based on addressing the problems within supply chains like fragmented data, counterfeiting, delays and reduced trust within stakeholders. These objectives results in increased expense, decreased productivity and jeopardized quality control.

Our project presents a solution that helps to create a delegated, immutable and transparent ledger system. By this we target to increase traceability, decrease fraud, improvement in data accuracy and foster trust within stakeholders.

A blockchain based supply chain management system will be developed that will include automatic processes contracts, digital identities for the ones that are involved in supply chain management system and user-friendly environment. Our project's main purpose is to create a scalable and secure program for the supply chain operations.

The project by various means of mechanisms such as proof of authority will design and develop a blockchain network. Smart contracts will deal with processes of supply chain such as from procurement to delivery. Digital identities for manufacturers, suppliers, distributors and consumers will be developed to ensure accountability.

Blockchain implementation in supply chain management will result in decreased costs, reduced fraud, rapid dispute resolution and increased traceability. This will result in better product quality, satisfaction of customers and businesses competitiveness. In addition to this, it shall empower the consumers for the real time product information and enhance the sustainability and responsible consumption. However, our project aims to promote efficiency, security and transparency and to reshape the supply chain landscape.

2. Background and Justification

The supply chain management system is important for the global economy and to facilitate the goods movement from manufacturers to consumers. Significant challenges are usually faced that are linked to transparency, efficiency and security. The traditional system of supply chain is dependent on centralized databases that lead to inconsistency in data, trust issues within stakeholders and products journey from

source to destination tracking difficulty. Supply chaim inefficiencies lead to elevated costs, delays and concerns (Environmental). The transformative solutiin' requirement is necessary and to deal with challenges, blockchain technology rises as a promising tool.

There had been a lot of efforts in integrating the blockchain into supply chain management but the limitations in user friendliness and scalability are usually faced. Our project, " Blockchain- Enhanced Supply Chain Management " is established on this foundation by means of blockchain technology capabilities. We mainly focus on enhancing the previous or existing work by means of improving scalability, user-friendliness ensuring by streamlined interface and for automated and secured transactions incorporation of Ethereum smart contracts.

By means of offering Real time transparency, traceability and security, Our Project aims to revolutionize how supply chains are managed. The introduction of blockchain to supply chain results in a better, secure and environmentally friendly ecosystem. This not only reduce the risks but also act as a driving force for the progress in the industry resulting in a more efficient and transparent global supply chain network.

3. Project Methodology

In order to achieve the objectives and aims of supply chain guard project, the methodolog involves a systematic approach that is composed of stages such as:

1.Requirement Specification:

The primary step is to perform the analysis of requirement.In order to define the features, characteristics and the scope of blockchain-enabled supply chain management system , it requires working closely with the stakeholders. Knowledge about the needs and challenges of supply chain is important to shape the project direction.

2.Project Planning:

The project plan develops upon defining the requirements and demands. The architectural design and technical details of solution are outlines in this plan, which serves as a roadmap for the project.

3.Frontend Development:

The development of an intuitive user interface is important point of the project.By means of technologies such as React and Next.js, this development is performed. A

User friendly interface is important so that the businesses can interact with blockchain based system.

4.Smart Contract Development:

Smart contracts which are developed in solidity are specially for the Ethereum blockchain. These yield the delegated or decentralized aspects and ensures that there had been automated and secure transactions.

5.Integration:

Integration of blockchain technology and Ethereum smart contracts is one of the critical aspect of the project. The objective of this is to develop a seamless. Secure and decentralized network for the recording transactions.

6.User Interface Enhancement:

The project mainly focus on enhancing the user interface and ensures that the generated meta tags can be reviewed and customized easily. So, this step improves the experience and engagement of the user.

7.Testing and Quality Assurance:

At each stage of development, testing will be conducted so that, functionality, security and usability can be ensured. Agile principles are aligned with this testing process.

8.User Feedback and Iteration:

User's feedback and iterations are involved by agile. To provide feedback and meta tag suggestions that allows for improvements and refinements, the users will be encouraged.

In order to ensure that the solution aligns with the objectives of the project and the stakeholder 'needs are met these testing, quality control and feedback loops are applied by means of these stages. This also ensures that the Supply chain guard project moves towards its goal and fulfill the objective of revolutionizing the supply chain management and in a global marketplace fostering the trust and transparency.

4. Project Scope

The scope of the project involves the progress of comprehensive blockchain driven supply chain management solution that aims at improving the

transparency, security and efficiency in supply chain operations. Integration of blockchain with Ethereum, Implementation of smart contracts for automation, a frontend that is user friendly and built with React and Next.js, features of real time transparency, efficiency optimization, Robust security measures, environmental friendly tracking, documentation an reporting of the capabilities, considerations of scalability and training of the user and support resources are some of the main and important components. The main goal or objective is to gave a versatile, unique and reliable platform that encourages the supply chain stakeholders to make informed decisions , decease cost or expense, eliminate the risks and promote practices that are sustainable and the management of critical supply chain processes are streamlined.

5. High level Project Plan

- In one week, the project proposal will be done.
- In one week, the document of the introduction will be prepared.
- In two weeks, the document of the software requirement specification shall be ready.
- In two weeks, Software Functional Specification document will be done.
- In the coming 6 week of this semester, 40% implementation will be accomplished.
- And Till the final semester,100% implementation will be done.

6. References

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